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B. ISOGAMÆ.

- Fam. 14. *Dasycladiaceæ* (Endl.) Cramer.
 " 15. *Derbesiaceæ* Thur.
 " 16. *Bryopsidaceæ* (Bory.) Thur.
 " 17. *Caulerpaceæ* Reicheub.
 " 18. *Spongodiaceæ* Lamour.
 " 19. *Udoteaceæ* (Endl.) J. Ag.
 " 20. *Hydrogastraceæ* (Endl.) Rabeuh.
 " 21. *Phyllosiphonaceæ* Frank.

Ord. III.—**Protococcoideæ**, (Menegh.) Kirch.

- Fam. 22. *Volvocaceæ* (Cohn) Kirch.
 " 23. *Palmellaceæ* (Decaine) Næg. em.

Ord. IV.—**Conjugatæ** (Link.) DeBary.

- Fam. 24. *Zygnemaceæ* (Menegh.) Rabeuh.
 " 25. *Desmidiaceæ* (Kuetz.) DeBary.

These families include two hundred and twenty-nine genera, and twenty-nine hundred and ninety-two (2992) species. Very many of the genera contain but a single species, there being no less than eighty-nine such, with many containing but two species. On the other hand, there are several large genera, *e. g.*, *Ædogonium*, with 189 species; *Cladophora*, with 229; *Spirogyra*, 84; *Closterium*, 103; *Cosmarium*, 307; *Euastrum*, 99; *Staurostrum*, 250.—CHARLES E. BESSEY.

Gremli's Flora of Switzerland.²—This little volume is a genuine pocket manual,—a trifle large, perhaps, but still small enough to be readily slipped into the traveler's coat pocket. It measures $4\frac{3}{4}$ by 7 inches, and is less than an inch in thickness. The contrast between these measurements and those of our ordinary manuals is striking, *e. g.*, Gray's, $8\frac{1}{2}$ by $5\frac{3}{4}$ by $1\frac{1}{2}$ inches; Coulter's, about the same; Chapman's, $8\frac{3}{4}$ by $5\frac{3}{4}$ by $1\frac{1}{2}$; Wood's Classbook, $8\frac{1}{2}$ by $6\frac{1}{4}$ by $1\frac{3}{4}$; Wood's Botanist and Florist, 8 by $5\frac{1}{4}$ by $1\frac{3}{8}$. This contrast is still greater when we note the fact that this book contains descriptions of fully 2500 species, while Gray's has but 2348, and Coulter's 1881.

The descriptions are brief, but apparently quite satisfactory, and much space is saved by the liberal use of abbreviations. Keys are abundantly provided, so that there need be no difficulty in determining the name and classification of any plant.

In print, binding, and general appearance (including color), this

² *The Flora of Switzerland*, for the use of Tourists and Field-botanists, by A. Gremli. Translated from the fifth edition by Leonard W. Paitson, London. David Nutt, 270 Strand, 1889. Printed at Zurich. 12mo, pp. xxiv., 454.

little book resembles the well-known Baedeker's Handbooks.—CHARLES E. BESSEY.

Lubbock's Senses of Animals.³—One of the recent additions to the International Science Series is by the genial English naturalist, Sir J. Lubbock, and contains the results of his observations on the senses and intelligence of animals, especially of insects. Having found it necessary to consult many memoirs in various languages, in order to well understand the mechanism of the senses, and the organs by which sensations are transmitted, the author has in this work brought together the notes thus made, and given a list of the principal memoirs consulted. Commencing with man, Sir J. Lubbock works his way downward through the lower animals, dwelling chiefly upon the class which has especially engaged his attention. Chapter I. deals with touch; taste and smell have each a chapter devoted to them; hearing occupies two chapters, and sight takes up the chapters VI. and VII. The eighth chapter is on problematical sense-organs, such as the muciferous canal of fishes, light organs, etc. The range of vision and hearing, and the existence of unknown senses, are also here discussed. It is known that among ants; bees, and wasps, some at least hear sounds which we cannot, and that they can perceive the ultra-violet rays to us invisible. Chapter IX. refers to bees and colors, treating of the author's experiments, and answering Dr. Müller's objections. The limits of vision in animals form the subject of the tenth chapter, while the eleventh treats of recognition among ants, and the twelfth of the habits of solitary wasps and bees. Chapter XIII. deals with the supposed sense of direction, the possession of which he is inclined to deny to bees. In his chapter upon the sense of hearing, he does not argue that the vertebrate semicircular canals are the seat of such a sense. The last chapter details, among other things, the author's celebrated experiments with word-cards upon his dog Van.

RECENT BOOKS AND PAMPHLETS.

Archivos do Museo Nacional do Rio de Janeiro, Vol. VII. From the Museum.

BARROIS, CHARLES.—Faune du Calcaire D'Erbray. Extrait des Mémoires de la Société Géologique du Nord. Tome III., Avril, 1889. From the author.

BAUR, G.—Osteologische Notizen über Reptilien. Separatabdruck aus dem *Zoologischen Anzeiger*, 1888. From the author.

³ On the Senses, Instincts, and Intelligence of Animals, by Sir J. Lubbock, M.P. F.R.S., etc. International Scientific Series LXV. Kegan Paul, Trench & Co., London, 1888.